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ABSTRACT

This creative photography quinmester curriculum guide was written to enable the student to use photography in a wide range of art forms. The student will gain an understanding of how photography is used in the fields of commercial and fine art. The introduction to photography as a unique art form includes a brief history of creative and experimental photography and the evolution of the camera as an art tool, and emphasizes learning the mechanics of the camera and other equipment. Activities present an opportunity to build a camera, make creative slides using color and positive/negative forms, photocaricatures, and photograms.
 (Author/OPH)

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AUTHORIZED COURSE OF INSTRUCTION FOR THE **QUINMESTER PROGRAM**

DADE COUNTY PUBLIC SCHOOLS

Art Education

THE REEL THING

Art Cft 7 6681.01

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THE REEL THING

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CREATIVE PHOTOGRAPHY

Written by William Farnsworth

& Louise Beckman

For The

DIVISION OF INSTRUCTION

Dade County Public Schools

Miami, Florida

1971

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I. COURSE TITLE

THE REEL THING

II. COURSE NUMBER

ART CFT 7 6681.01

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CM ART 1 6693.01

III. COURSE DESCRIPTION

An introduction to photography as an unique art form, including a brief history of creative and experimental photography and the evolution of the camera as an art tool. Activities present an opportunity to build a camera, make creative slides using color and positive/negative forms, photocaricatures, and photograms.

IV. RATIONALE

This creative photography quin was written to enable the student to use photography in a wide range of art forms. The student will gain an understanding of how photography is used in the fields of commercial and fine art. He will also be familiarized with the history of photography and its influence on art, and learn the mechanics of the camera and other equipment used in photography.

V. COURSE ENROLLMENT GUIDELINES

- A. No prior courses required
- B. A concurrent course in elements of composition would be beneficial

VI. COURSE OF STUDY OBJECTIVES STATED IN BEHAVIORAL TERMS

At the completion of the course the student will be able to do the following:

- A. Show his understanding of the appropriate use of all the tools and materials by his careful handling of them.
- B. Construct and take a picture with a pin-hole camera.
- C. Identify the principles of camera function.
- D. Develop film.
- E. Create a composition by painting on photographic paper.
- F. Photograph the fundamentals of design: form, line, shape, value, texture, color, and space.
- G. Create different impressions and moods in a photograph, using varied pattern in glass.
- H. Create a photogram.
- I. Make a multi-image print using a rebuilt kaleidoscope.
- J. Build his own slide using color and positive and negative shapes, and develop a black and white print from a color transparency.
- K. Choose and work out a commercial project from a list of suggested topics.
- L. Form his own lens and create a photocaricature.

- M. Explain these types of cameras and their significance in the historical development of the camera: daguerreotype, calotype, roll-film camera, miniature camera, and Polaroid-Land camera.
- N. Explain these types of processes and their historical significance: wet plate process, dry plate process.
- O. List at least two uses of the camera in both the 19th and 20th centuries.
- P. Identify the influences of photography on art and art on photography.
- Q. Identify the following: Alfred Steiglitz, Edward Steichen, Man Ray, Dorothea Lange, and L. Moholy-Nagy.
- R. Trace the acceptance of photography as an art.

VII. COURSE CONTENT

A. Introduction

- 1. Minimal equipment needed:
 - a. One camera per ten students.
 - b. Darkroom (a darkroom would be needed a few hours a week. The graphics department of most schools has one that could be used or a temporary one could be built in a corner of the art room.)
 - c. Photographic trays (3).
 - d. Thermometer (1).
 - e. Plastic bottles (3).
 - f. Sponges (2).
 - g. 16 oz. graduate (1).
 - h. Safe light (1).
 - i. Interval timer (1).

- j. Tongs (2).
 - k. Enlarger (1).
 - l. Easel (1).
 - m. Film developing tank (1).
 - n. Developer (2 quarts).
 - o. Fixing solution (1 quart).
 - p. Photographic paper 9 x 12 (100 sheets).
 - q. Dryer (1).
2. Developing film
- a. Vocabulary
 - 1. Negative: The first word in the photography vocabulary should be negative. When you click the shutter of your camera and expose the film to light, the film is then termed as a negative. It is called a negative because all the tones are in reverse or negative from the original subject. Where the negative is dark, the print will be light and vice versa.
 - 2. Film developing tank: Simplifies film processing because once the film is placed in the tank the lights can be on.
 - 3. Emulsion: A suspension of a finely divided sensitive silver salt used for coating film.
 - 4. Developer: A chemical that develops an image on the paper.
 - 5. Hypo or fix: Sodium thiosulfate used as a fixing agent in photography.
 - b. Five basic steps to process film:

1. In a dark room place the exposed film in a developing tank. Once the film is inside the tank and the light-tight cover is closed, all subsequent steps can be carried out in normal light. A chemical solution called the developer is poured into the tank. This makes the image visible.
 2. The developed film is rinsed in water to remove most of the developing solution.
 3. A solution of chemicals called the fixer is poured into the tank. This fixes the developed film to make the image permanent.
 4. The developed, rinsed and fixed film is washed in water to remove the processing chemicals.
 5. The processed film is dried. It is now a negative.
3. Making prints and working in the experimental areas of photography
- a. Vocabulary:
 1. Enlargement: This is a print of greater size than the negative from which it was made.
 2. Printing paper: Is classified according to size, weight, surface, color and contrast grade. It is covered with a light sensitive emulsion.
 3. Enlarger: Projects the negative's image down vertically onto the paper. It is equipped with a flat field lens which can focus the image on different sized print paper.
 - a. Carrier: A flat piece of metal that holds the negative. It is placed between the lamp and the lens in the enlarger.
 - b. Easel: The easel holds the paper flat during exposure.

b. Ten steps in developing a print:

1. Set up the darkroom for enlarging.
2. Prepare working solutions. These are the same as the solutions for negatives except that they are for paper.
3. Put the negative in the carrier and the carrier in the enlarger. The emulsion side of the negative must face the easel.
4. Turn on the enlarger light. Adjust the image size and focus.
5. Open paper under safety light and put the paper on the easel.
6. Make exposure.
7. Develop print one and one-half to three minutes. Agitate during development.
8. Rinse with water or a diluted acetic acid.
9. Fix print fifteen minutes. After one minute in fix, white light may be turned on.
10. Wash print in running water for forty-five minutes and then dry.

B. History

The history of photography begins in the year 1839 with a new and exciting invention, the daguerreotype which afforded "the spontaneous reproduction of images of nature reflected by means of the 'Camera Obscura'" or pin-hole camera, a box with a small opening or lens at the front, a reflecting mirror at a 45 degree angle inside and a screen below for viewing the scene. The inventor was Louis Jacques Mande Daguerre, a painter. The brilliance of the images and the detail which they contained amazed his viewers. Within weeks production of his cameras, called daguerreotypes, was setup in both Europe and America. Photography as a practical picturemaking technique was born. The daguerreotype process

consisted of making highly polished, silver-plated copper plated light-sensitive. The latent image on the plate was made visible by development in subdued light with a mercury vapor. A quick wash of sodium thiosulfate and a thorough rinsing in water completed the operation. (Project #1: Pin-hole Camera)

Daguerre was not the first to experiment in early photography. Joseph Nicephore Niepce began in 1816 and by 1826 had made a photograph of a farm yard on a pewter plate. But, because of the long exposure time, 12 hours, the picture was a failure. The movement of the sun during the day washed out the shadows.

Others, too, were involved in this early development. Earlier in the 19th century, Tom Wedgwood, an Englishman, was trying to capture silhouettes or profiles of objects with silver salts. He encountered failure when he could find no way to remove the unused light-sensitive material, and the pictures darkened in the light while he looked at them.

William Henry Fox Talbot conceived the idea of recording the camera's image with light-sensitive paper, a significant change from the burdensome plates. He made paper light-sensitive by bathing it alternately in a solution of common salt and silver nitrate. After a lengthy exposure a negative was produced; that is, the darks were rendered light and the lights, dark. From this Talbot made a positive print simply by placing the negative in contact with a freshly prepared piece of "photogenic paper" and exposed it to light. Not only is Talbot's use of paper, rather than a plate, important, but such a change afforded many prints to be made from a single negative. He named his process "Calotype" and by 1843 it rivaled the daguerreotype in popularity. (Project #2: Painting on Photographic Paper)

Both techniques were soon to become obsolete. In 1851, Frederick Scott Archer invented a way of making a negative upon glass, called the "wet-plate" process. This and the former methods were still very inconvenient. The photographer needed a darkroom nearby and tents, wagons, railroad cars, and even boats were built to accommodate their equipment. Mathew Brady and Alexander Gardner aided by a team of men lugged bulky cameras and portable dark-rooms to the battlefield to produce memorable photographs of the Civil War using this wet-plate process. Timothy H. O'Sullivan carried his burdensome equipment across the desert to photograph

the Western territories for the U.S. government and Bisson Freres climbed mountains with his equipment to take pictures from the Alps.

The invention which was to revolutionize photography came in 1871, a gelatin bromide emulsion which when used on dry plates created a plate 60 times more sensitive than wet-plate. The plates could be developed long after the exposure. (Thus the photographer was freed from his darkroom.) Also, with the shortened exposure time now needed because of the sensitive plates, the photographer could stop time in its tracks. A lengthy sitting was now unnecessary, not only a definite comfort for the subject of a portrait picture, but also a factor in widening the fields of subjects photographed.

The last contribution of the 19th century to the development of photography was the roll-film camera introduced by George Eastman in 1888, which ushered in the era of popular snapshot photography.

Before we leave the 19th century with all of its technical inventions we must also look at its contributions to art theory. Photography began as a means of inexpensive painting and portrait reproductions. The goal of the artist was to duplicate what he saw, and the exactness with which a camera could capture its subject led to its immediate popularity. In fact, some artists viewed photography as a threat to the future of painting. Paul Delaroche commented on photography's birth, "From today, painting is dead." Other artists, such as Thomas Wedgwood used photographs as an aid in drawing perspective and sketching landscape views. In the 1850's portrait photography became the fad and portrait studios sprang up across the country.

Eventually painting and photography took their own direction. Photography's peculiar qualities and limitations were recognized. The subjectivity of painting led to a preoccupation with observations of the mind while the objectivity of photography led to an observation of life.

While the study of art-photography in the 19th century centered around the technological advances with only minimal experimentation and deviation in art theory, the 20th century will see attitudes toward art theory which change more rapidly than the equipment and which bring much creative experimentation.

One such man dedicated to promoting photography as an art was Alfred Steiglitz. He retouched the negative or print to achieve different effects, something quite new and different from the objective representation of the photographs subject. Steiglitz published and edited Camera Work, a periodical devoted to promoting higher standards in art-photography. With Edward Steichen he founded, in 1909, the "Photo-Secession," an influential society of dedicated photographers, who dared present their pictures as art. Their "291" gallery in New York was another means of gaining acceptance of photography as an art. In their drive for recognition they often sought effects of painting. The photographer was influenced by the impressionists paintings and Japanese prints. They frequently used soft-focus lenses and printing materials that allowed them to control the image by handwork, or that gave delicate, low-contrast tonal scale. (Project #3: Awareness of Fundamentals of Design)

About the time of World War I a new attitude toward the camera was to take place. The camera was viewed as a perfect "eye" capable of recording full gradations and minute detail. Steiglitz, Steichen, Paul Strand and Charles Sheeler all began to use the camera in this more direct way. "F/64" is the name given to their group whose camera technique gave distinction to both foreground and distant objects.

By 1920 the bold experimentation of painters influenced photographers and they turned to abstract vision. The camera was pointed upward and downward to create distorted perspective. Paul Strand joined this trend and shot many pictures from unexpected angles. Other images were created by placing objects or throwing light on sensitive paper, a process called photograms. Creative photographers experimented with artificial lighting, intentionally blurring the image, altering the negative, and superimposing images. Those who used photography as a tool for exploration in the abstract movement were Man Ray and L. Moholy Nagy. Nagy is credited with creating the photogram in 1926. Man Ray created abstract compositions with negative images produced by pressing an object against sensitized paper that was then exposed to light. (Project #4: Photograms)

The advent of the flexible miniature camera brought yet another new dimension to photography. It caused greater experimentation because its short focal length produced great depth of field

along with increased light-gathering power. The miniature camera enabled shooting under poor light condition, in or out-of-doors. Henri Cartier-Bresson developed a highly individualistic style by using high speed film and powerful lens. His pictures, with an accidental and spontaneous quality, capture the precise instant of action.

The climax of this trend is without a doubt Edward Steichen's The Family of Man, published in 1955. In photographs taken around the globe he shows the world as it really is. Helmut Gernsheim¹ says that creativity in photography hinges directly and only upon the perceptive powers and ability of the photographer. Some goals which the creative photographer searches for, and which Steichen reaches, are "the interest of everyday life, the vitality of action, the expressiveness of a situation, the beauty which lies in unusual form, texture and pattern, and above all, human relationships. Ugliness, poverty and sympathy with humanity."² (Project #6: The Family of Man)

A new sociological role for the camera developed during the early 20th century. During the Depression years, the early 1930's, Dorothea Lange used the camera sensitively to realistically portray the poverty-stricken American farmers, the immigrants, and the child labor conditions. Such documentation appeared in many newspapers and magazines and was instrumental in bringing much needed government aid to many of these people. As Gernsheim says, "a photograph can rouse human emotion to a degree to which no other graphic art can aspire."³

An important technological advance was the invention of the flashlamp in 1932. To fully appreciate it we must examine the methods and devices of artificial lighting prior to its invention. Although portraits were taken using the light from a nearby window, more light was needed to shorten exposure time and to enable working on cloudy days. The first experimentation with artificial lighting came in 1839 and 1840, but it was too harsh causing the faces to turn chalk-white. John Maule's "Photogen," in 1857, consisted of a pyrotechnic compound which was burned in a glass lantern with a special stove pipe attachment to carry out the fumes. Even though a blue glass shield was used, the sitters still turned out unnaturally white. By 1862 a new source of light was patented, a burning magnesium wire with reflectors. Two major drawbacks were (1) the cost of magnesium which had limited uses and limited production

¹Helmut Gernsheim, Creative Photography, Aesthetic Trends 1839-1960, Boston, 1962, p. 19.

²Ibid.

³Ibid.

and (2) the smoke which lasted for hours thus limiting the number of photographs to be taken in one day. In 1886 the flashlight means of artificial lighting came into use with the introduction of magnesium in powder form. The ignition of the powder was unpredictable and the sitter took risks. Popularity grew as the flash was regulated to margins of safety. Louis Bouton, a specialist in underwater photography, built a glass globe container for his flashlight. Later the idea of a vacuum glass globe was developed to prevent excessive expansion caused by the burning magnesium wire which sometimes resulted in breakage of the globe. By 1925 the modern safety flash bulb was introduced as aluminium wire replaced the magnesium wire. Electric light in the form of an arc lamp was also used as early as 1851 but it created the same harsh effects as the magnesium lights. In 1859 Madar was using a Bunsen battery and white reflectors. Exposures still required from one minute to several hours. Henry Van der Weyde in 1887 succeeded in shortening the exposure time to a few seconds by using electric light exclusively and a huge parabolic reflector fitted with prisms, which generated a 6000 candle-power light.

The electric flashlamp of 1932 succeeded in producing an enormous light output for a very brief duration. Thus photographers could use large cameras with small lens apertures and high shutter speeds to capture the peak of action. Previous flash sources were set off during the exposure time, that is, after the shutter was opened and before it was closed. Now flash photographs are made with flashbulbs of glass containing wire or foil of magnesium and aluminium. They are triggered by a battery and the circuit is closed when the camera shutter is operated. Some flashlamps are made to give a rapid succession of very short, bright flashes.

Gjon Mili used consecutive electronic flashes to produce pictures having a series of separate but partly superimposed images of the subject in various stages of motion. This dizzy effect would be compared to Marcel Duchamp's "Nude Descending the Stair Case" (Project #7: Kaleidoscope)

Color photography is one of the latest contributions to the technological advances of photography. As early as 1907 Louis Lumiere and his brother, Auguste, invented the autochrome process, which consists of making glass plates color sensitive by

coating one side with gelatin emulsion and the other with starch grains dyed red, green, and blue. After development to a positive it was called a color transparency. While this method was commonly used by amateurs, professionals preferred the carboc process, that is, making three negatives in a special camera using red, green and blue filters. In 1935 still another was to be invented, the Kodachrome process; the inventors, Leopold Mannes and Leopold Godowsky. The special feature of this process was a multilayer film, including color negatives and color prints, have greatly extended the yet unexplored possibilities of color photography. (Project #8: Creative Slides)

And the last invention to be discussed, even more new than color photography and one which has caused a technological revolution in photography, is Edwin Land's Land-Polaroid one step system. It is the first successful in-the-camera developing process, which enables the photographer to have a finished product in 10 seconds. The effect of this innovation, still in the developmental stage, on the art of photography has yet to be realized and measured.

As the creative experimentation with photography has grown in the 20th century, so has its uses. Besides gaining acceptance as an aesthetic art, photography has entered the business field in the realm of commercial photography, that is, photography used to sell an idea or product. The role of the photographer and photography in advertising started around the end of the first world war. The younger generation and Dadaism, painting based on deliberate irrationality, broke from tradition, helped bring commercial photography to light. Many artists contributed to photo design in advertising. George Grosz, a German painter, invented the photomontage now widely used in advertising. The American painter, Man Ray, opened the way to new optical configurations in his work with photograms. Herbert Bayer developed a photo montage in connection with drawing and spray retouch work. This combination produced the effect of a surrealistic picture. (Project #9: Commercial Art)

We leave our study of the history of photography and its progress from a mere copying device to an art form of its own, in the midst of a century which is still to see many changes. (Project #10: Photocaricatures) (Project #11: Solarization)

VIII. SUGGESTED LEARNING ACTIVITIES

A. Suggestions for Instructor

The only part of tank processing that may be difficult for students is getting accustomed to working in the dark while unspooling the film and loading it into the tank. It is best to practice in the light with a blank roll of film. This will give the student confidence, and he will be able to handle his film in the dark without fumbling. Once he is ready, adjust the tank reel so it is set properly to accommodate the width of film he intends to process. Before he breaks the seal on the roll of film, turn out the lights. Then unroll the film. Attach the film, emulsion side in, to the reel. Put loaded reel into tank and place on tank cover. Then student can turn on the lights. Next, check the temperature of all solutions. For the best results, they should be between 65 and 70 degrees Fahrenheit. The student is ready to start development by pouring developer into the tank. The directions that come with the developer will tell you the length of time to leave the developer in the tank. Rinse the film with water for about two minutes and then pour out the water. Pour in the hypo and leave the fix or hypo in the tank for ten minutes. Open the tank and rinse thoroughly with water. Remove the washed film from the reel and sponge the negatives to prevent water spots. Hang to dry in a clean, dustless area.

If you have a film developing tank and an old roll of film, a demonstration along with printed directions would make the process of development clear and interesting to the class.

B. Activities

The projects for this unit are set up on worksheets that may be used as student handout information sheets.

PROJECT #1 "CAMERA OBSCURA" - PINHOLE CAMERA

1. Materials:

- a. A Box (shoe box)
- b. Black paint
- c. Black tape
- d. Aluminum foil
- e. Black and white sheet of film - 4" x 5"

2. Directions:

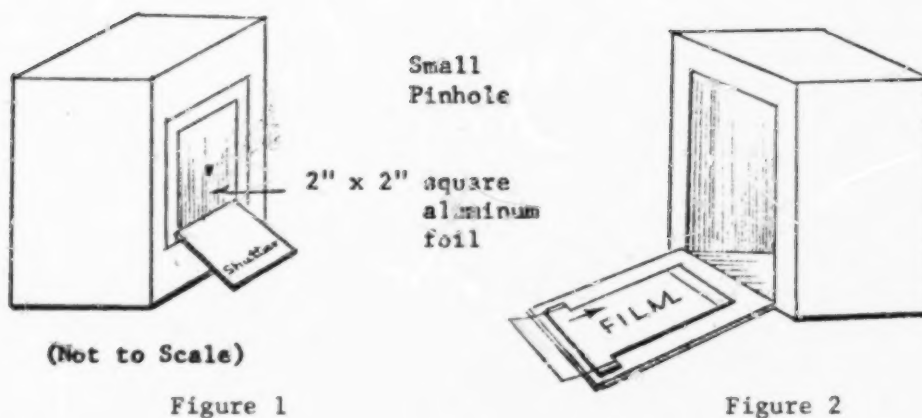
The pinhole camera is made on the principle that light when passing through a small hole will cast an inverted image on the flat surface behind it.

The most important step in making the camera is punching the pinhole. Using a fine needle, press a small clean-edged hole in the center of a 2" x 2" square of aluminum foil. The aluminum square is taped over the cut out center at the front of the box (see figure 1).

The focal length (distance between hole and film) is important. If you have a short distance (one inch), you will get a wide angle picture, up to 140 degrees. If the pinhole is at an extreme distance (6 feet), you will get a telephoto picture. Six inches is about right for an average focal length.

Make sure that the camera is light tight. The inside of the box should be painted black and black tape should be used to tape the lid down. On the back of the box opposite the pinhole a flap is cut an inch larger than the film to be used. Next, a frame made of thin cardboard is cut in an open ended rectangular shape and glued to the flap. In complete darkness, the film is slipped into the frame. (See figure 2) A flap made of cardboard and tape placed at the front of the camera will act as a shutter. (See figure 1)

The camera is set in front of the object to be photographed. It must be held very still. The shutter is opened; the length of time depends on the film and brightness of light. The shutter is then taped shut and the film is developed.



3. Objective:

This project gives the student a basic understanding of how a camera works and a chance for experimentation with speeds of different film, exposure times and focal length. A display of handmade cameras and photos made with them could be set up at the end of the project.

PROJECT #2 PAINTING ON PHOTOGRAPHIC PAPER

1. Materials:

- a. Developer
- b. Fix
- c. Plastic tongs
- d. Photographic paper
- e. Trays (3)
- f. Stop bath
- g. Variety of brushes and other printing materials desired.

2. Directions:

This project employs the use of materials commonly used to develop a print and enables the student to learn how developer works while working in the classroom with the lights on.

The students draw directly on exposed photographic paper. Each student manipulates a variety of materials by dipping them in the developing solution and moving them around on the photographic paper. The developing solution creates an image on the paper. When the student is satisfied with his design, he places the paper in the stop bath. The student repeats the designing and stop bath procedures until the composition suits him. Complexity and imagination will determine the number of times the print may enter the bath. When the design is finished, the print is placed in the stop bath for one and one-half minutes. This controls the action of the developer. Then it is placed in the fixer for ten minutes which will permanently set the design. Then it is placed in cool running water for an hour.

3. Objective:

To introduce the student to the basics of photographic development.

PROJECT #3 AWARENESS OF FUNDAMENTALS OF DESIGN

1. Materials:

- a. Camera
- b. Film

2. Directions:

Students sometime have difficulty becoming aware of basic art fundamentals as they appear in their general environment. In the classroom, when the teachers talk of composition, space, and form, the terms tend to become abstract and not related to the every day world of the student. Photography can be used as a means of clarifying these fundamental relationships. The camera is an aid capable of stimulating the visual awareness of the student. With a camera in hand, he will quickly learn to look for and separate the different elements of art. A camera helps a student to increase his ability to focus his attention on his environment.

The student should be concerned with seeing creatively. It is the individual who forms the picture, not the camera. He must be sensitive, see creatively, and have a personal relationship with what he photographs. The photography can play a valid role as an art form and serve to heighten visual sensibility.

The student should be assigned to photograph the fundamentals of design: form, line, shape, value, texture, color, and space.

3. Objective:

This project should enlarge the visual experiences of the student through photography. It will aid the student in seeing the direct relationship between the elements of design and his own environment.

PROJECT #4 PATTERNS CREATED BY GLASS

1. Materials:

- a. Darkroom
- b. Negative
- c. Enlarger
- d. Materials to develop photographic paper.
- e. Textured glass - 4" x 4"

2. Directions:

This technique opens a whole new field of creativity to the photographer. It creates an impressionistic effect in that it captures the impression of the subject rather than a realistic view.

Each different pattern of glass will cause a unique texture upon the subject. You can find many different types of patterns of glass at any local glass dealer. Any pattern may be used if it is free from scratches and is colorless.

When the student is ready to try his first pattern, have him select a piece of glass and clean it thoroughly. Choose a negative. Put the glass with the negative on top of it between the bellows and the lens. Observe the results on the easel. Focus in the usual way and make the exposure. A little more exposure time is necessary when shooting through glass. If the print does not look right after developing it, try changing the relationship between the negative and the glass by turning the glass. The same negative should be used several times with different patterns of glass.

3. Objective:

To help the student learn how varied patterns in glass can create different impressions and moods in a photograph.

PROJECT #5 PHOTOGRAMS

1. Materials:

- a. Darkroom
- b. Pen light
- c. Enlarger on light in darkroom
- d. Photographic paper
- e. Developer
- f. Fix

2. Directions:

Of all the photographic processes, photograms can be one of the most creative. A consistent fresh and wide variety of images can be achieved, limited only by the students' imaginations.

The technical process is a simple one. Arrange the objects on a sheet of photographic paper. The student should consider his arrangement carefully for best composition. Objects of different shapes and texture create different silhouettes. A highcontrast glossy enlarging paper is preferable. Once the objects on the glass are placed over the paper, expose the paper to the light for a few seconds. When the room is again dark, remove the glass and process the paper exactly as one would a photographic print. The result is a negative image that corresponds exactly to the shape and degree of transparency of the objects used.

If the student is using an enlarger for his source of light he will find the following information useful. Short exposures can give a soft gray background. As exposure is increased, you can go to a complete black. When the enlarger lens is wide open some softness around the edges of the objects will appear. If the student is using a flashlight or table lamp the same results will occur. If the enlarger lens is stopped down it will produce a sharp outline.

The student may wish to use an alternate method in creating photograms. Instead of using objects to form the different shapes he could use a penlight. Holding the penlight close to the paper the student can draw with light his design upon the paper.

3. Objective:

Photograms give the student a chance to incorporate light into his picture in a direct manner. The heart of the medium is the creative control of light. It also introduces the student to the basics of developing photographic paper.

PROJECT # 6 THE FAMILY OF MAN

1. Materials:

Several copies of Edward Steichen's The Family of Man or prints from the book.

2. Directions:

The Family of Man affords the class a wonderful opportunity for class discussions on photography.

- a. Have students list or discuss contrasts or comparisons that can be seen in such photographs as the African family photo and the American family photo.
- b. Have students pick a photograph they like and discuss why they like it. This could lead to a discussion of what are the qualities of a good photograph.
- c. Have students take a timed look at a particular picture. Have them list or describe what they remember.
- d. Have students pick the ten pictures they feel are best. The selection should be made for their impact, meaning and graphic beauty. Have the class compare their list. Make a class list.

3. Objective:

To stimulate the visual awareness of the student.

PROJECT #7 KALEIDOSCOPE

1. Materials:

- a. Kaleidoscope
- b. Two mirrors
- c. Camera

2. Directions:

A kaleidoscope is a cardboard tube filled with bits of colored glass that is mirrored into different patterns. When used as a photographic tool, the kaleidoscope can produce some new and startling results.

The kaleidoscope principle is very simple. The tube contains a piece of shiny metal bent in a V-shape, which reflects an image back and forth from one surface to the other.

To render the kaleidoscope useful for photography, throw away everything but the tube and the V-shaped metal. The metal will not give sharp enough reflections so mirrors need to be cut to fit inside the metal pieces. Then the mirrors are placed inside the tube. The last step is to tape up both ends of the tube so only the V-shape center is open. This prevents extraneous light from filtering in.

The student is now ready to photograph. The best subject matter would be a single subject. A scene crowded with detail offers little possibility for interesting symmetry which is the basis of kaleidoscope pictures.

There will be a certain amount of light loss so allow at least two extra stops more than you would normally shoot.

3. Objective:

With the use of the kaleidoscope the student will have a greater variety with which to approach his subject matter creatively.

PROJECT #8 CREATIVE SLIDES

1. Materials:

- a. Slide frames (2" x 2")
- b. Slide Projector
- c. Clear food wrap
- d. Glue
- e. Color transparency

2. Directions:

Each student will need a 2" x 2" slide frame preferably with a large opening. The frame is split in half. A clear food wrap is glued to the edges of the frame. The student will place small thin objects on the slide. The student should arrange the objects to form an interesting composition. Color will not matter if the objects are opaque because when projected only the silhouettes or outline shape will appear. The shape will project black and the negative areas white. Once the student has created the arrangement he wants, he should staple the two sides of the slide together and use a slide projector to see the results.

A variation to the project would be to use color cellophane in place of objects. By folding one color of cellophane different values of that color can be made. By overlapping two different colors a third color will be created.

Another suggested slide project is to make a black and white print from a color transparency. The color transparency is placed in the enlarger in place of a negative. It is exposed to black and white photographic paper and developed in the usual manner. This results in the colored slide making a black and white print with the light and dark areas reversed.

3. Objective:

This project will enlarge the visual experience of the student. By projecting his work the student will see how size can affect composition and color.

PROJECT #9 COMMERCIAL ART

The role of commercial art in advertising must start with the selling concept. After the planned picture and word idea have been thought-out, the photographer must find the best way to enhance that idea. The picture should never upstage the idea or product. The picture, the words, and the idea should blend together so perfectly that they emerge as a single statement. The same principle holds true with filmed commercials; concept first, then execution.

1. Materials:

The materials will vary slightly from project to project but basically the following materials will be needed:

- a. Darkroom equipment
- b. Film (for indoor photos an A.S.A. speed of 250 or higher is advisable.)
- c. Camera
- d. Varied sizes of photographic paper
- e. Lettering (cut-outs)

2. Directions:

Have the students select a project. Listed below are some suggestions.

- a. Picture calling cards
- b. Picture greeting cards
- c. Personalized post cards
- d. Student identification cards
- e. Photo campaign buttons

Place the negative in the enlarger as usual. Focus the image so that it only covers part of the photographic paper. Cover the other part, which will be used for lettering, with a sheet of cardboard and expose it as usual. Then cover the exposed area with the cardboard. If the student wants white letters on a black background, he places the cut-out letters on the paper and exposes it for a few seconds. If he wants black letters on a white background, he cuts the letters out of a stencil, places the stencil over the paper, and exposes it for a few seconds.

- f. Photographs of school dances, student productions, or sporting events.
- g. Campaign posters

The projects listed above are initiated by having the students photograph the school event. The student develops the film and makes prints. The prints may be displayed, given to the school newspaper, or sold to the individuals involved.

3. Objective:

This project gives the student a chance to relate commercial interests and photography.

PROJECT #10 PHOTOCARICATURES

1. Materials:

- a. Camera
- B. Film
- C. Clear plexiglass (1/8" thick and about 4" square)

2. Directions:

The student will find that creating photocaricatures is an excellent method of exaggeration and satire.

Place the plexiglass in a pan and put it on a hot plate at its lowest temperature. When the plastic gets hot, pick it up and bend it until it distorts images. Be sure to use gloves while handling the hot plastic. Once the student has the desired shape, drop it into cold water and it will harden. The student has a caricature lens.

When he holds the plastic in front of his viewer, he will be able to see the results. If he is not satisfied with the effect, he can reheat the plastic. It will return to its original shape. Once the student has developed the plastic lens that offers him interesting variation in shape and form, he is ready to photograph. The student could use photocaricature lenses to create serious photographs, although it is best suited for cartooning and satire such as Daumier created with his pencil back in the 1800's. The student should be allowed to experiment with the lens, remembering that inanimate objects as well as people and animals can be caricatured. A school sports event would be an excellent subject.

Besides using plastic, the student could use glass cups and glass plates with patterns in them to get still other effects.

3. Objective:

Photographing through plexiglass to create a photocaricature offers the student a new method and attitude, that of satire, with which to approach and treat his subject.

PROJECT #11 SOLARIZATION

1. Materials:

- a. Camera
- b. Black and white film
- c. Darkroom equipment

2. Directions:

There are three types of solarization: negative, positive and partial. In all types the film is exposed to light sometime during the developing process. It is recommended that this solarization project be tried at the high school level. Negative solarization is the easiest.

A transparency is made from the negative and briefly exposed to white light during development, after which the previously light areas will go black. Because of the high development rate due to the light exposure, a concentration of bromide forms along the borders of large highlight and shadow areas which retards development in these areas. At the final stage the film is more or less black all over. After fixing, however, thin transparent border lines appear along the outline of the subject areas. The result is a ghostly quality with light and dark areas reversed.

There are many other ways to experiment with solarization which can best be learned through trial and error by the student.

3. Objective:

This project will show the effects of light and dark and negative and positive shapes have in a photographic composition.

RESOURCES FOR PUPILS AND TEACHERS

- Barthel, Tobias M. Photo Graphism International. Munchen, Germany: Verlag Georg, 1965.
- Braive, Michel F. The Photograph, A Social History. New York: McGraw-Hill, 1966.
- Croy, O. R. Creative Photo Micrography. New York, Anphoto, 1968.
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- Durniak, John. 100 Camera Projects For Fun and Profit. New York: A. S. Barnes and Co., 1959.
- Elisofon, Eliot. Color Photography. New York: The Viking Press, 1961.
- Elliott, George P. Dorothea Lange. New York: Doubleday.
- Feininger, Andreas. Total Picture Control. New York: Anphoto, 1970.
- Herdeg, Walter. Photographis 68. Zurich, Switzerland: The Graphic Press, 1969.

PERIODICALS

- Modern Photography. New York: Billboard Publications.
- Popular Photography. New York: Davis Publishing Co.
- U. S. Camera Annual. New York: U. S. Camera Publishing Corp.

AUDIO-VISUAL MATERIALS

- Photography: An Historical Survey in America. New York: Sandals Inc. Set S-70, 25 slides (\$31.25).
- Once Invisible. (Photography at the Museum of Modern Art). New York: Sandlas Inc. Set S-106, 25 slides (\$31.25).